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AMENDMENTS TO THE CLAIMS

1. (Cancelled)

2. (Cancelled)

3. (Cancelled)

4. (Original) A dynamic bandwidth allocation method for an Ethernet Passive Optical Network (EPON) including an optical line termination (OLT), an optical distribution network (ODN), and a plurality of optical network units (ONU), the method comprising:

a first step of, upon receipt of a control message for upstream report from the optical network unit, checking which ONU's information is contained in the received control message, and updating a bandwidth;

a second step of, when a sum of bandwidths for HP (High Priority) of all ONUs is more than a link capacity, allocating a bandwidth proportional to the bandwidth for HP of each of the ONUs to each of the ONUs in the same order as a previously allocated order of ONUs, if there is a previously allocated order of ONUs;

a third step of, when the sum of bandwidths for HP (High Priority) of all ONUs is less than the link capacity, allocating a bandwidth equal to the bandwidth for HP to each of the ONUs;

a fourth step of, when a sum of the bandwidths for HP and MP (Medium Priority) of all ONUs is more than the link capacity, using a bandwidth remaining after the allocation for the bandwidths for HP to additionally allocate a bandwidth proportional to the bandwidth for MP of each of the ONUs to each of the ONUs;

a fifth step of, when the sum of the bandwidths for HP and MP of all ONUs is less than the link capacity, using a bandwidth remaining after the allocation for the bandwidths for HP to additionally allocate a bandwidth equal to the bandwidth for MP of each of the ONUs to each of the ONUs;

a sixth step of, when a sum of maximum bandwidths of all ONUs is more than the link capacity, using a bandwidth remaining after the allocation for the bandwidths for HP and MP to additionally allocate a bandwidth proportional to the bandwidth for LP (Low Priority) of each of the ONUs to each of the ONUs; and

a seventh step of, when the sum of the maximum bandwidths is less than the link capacity, allocating an additional bandwidth to each of the ONUs so that a total bandwidth allocated to each of the ONUs is equal to the maximum bandwidth of each of the ONUs, and equally dividing a bandwidth remaining after the bandwidth allocation for the maximum bandwidth to be additionally allocated as a bandwidth for LP to each of the ONUs.

5. (Original) The dynamic bandwidth allocation method as set forth in claim 4, wherein the first step is performed in such a manner that, when the control message for upstream report is received from the optical network unit, it is checked which ONU's information is contained in the received control message, and a request bandwidth for HP, which corresponds to queue length information for HP/update period, is updated, and a request bandwidth for MP, which corresponds to queue length information for MP/update period, is updated, and a request bandwidth for LP, which corresponds to queue length information for LP/update period, is further updated.

6. (Original) The dynamic bandwidth allocation method as set forth in claim 4, wherein

the high priority service is a service having requirements of end-to-end delay and jitter of the services of the ONUs,

the medium priority service is a service which is sensitive to the delay but requires a predetermined bandwidth, and

the low priority service is a BETC (Best Effort Traffic Class) service which has no requirement of end-to-end delay and jitter, and is assigned a marginal bandwidth.

7. (Previously Presented) A computer-readable medium for storing instructions, which when executed enables a computer to perform:

a first step of, upon receipt of a control message for upstream report, checking which of a plurality of ONU's information is contained in the received control message, and updating a bandwidth;

a second step of, when a sum of bandwidths for HP (high priority) of all ONUs is more than a link capacity, allocating a bandwidth proportional to the bandwidth for HP of each of the ONUs to each of the ONUs in the same order as a previously allocated order of ONUs, if there is

a previously allocated order of ONUs;

a third step of, when the sum of bandwidths for HP of all ONUs is less than the link capacity, allocating a bandwidth equal to the bandwidth for HP to each of the ONUs;

a fourth step of, when a sum of the bandwidths for HP and MP (medium priority) of all ONUs is more than the link capacity, using a bandwidth remaining after the allocation for the bandwidths for HP to additionally allocate a bandwidth proportional to the bandwidth for MP of each of the ONUs to each of the ONUs;

a fifth step of, when the sum of the bandwidths for HP and MP of all ONUs is less than the link capacity, using a bandwidth remaining after the allocation for the bandwidths for HP to additionally allocate a bandwidth equal to the bandwidth for MP of each of the ONUs to each of the ONUs;

a sixth step of, when a sum of maximum bandwidths of all ONUs is more than the link capacity, using a bandwidth remaining after the allocation for the bandwidths for HP and MP to additionally allocate a bandwidth proportional to the bandwidth for LP (low priority) of each of the ONUs to each of the ONUs; and

a seventh step of, when the sum of the maximum bandwidths is less than the link capacity, allocating an additional bandwidth to each of the ONUs so that a total bandwidth allocated to each of the ONUs is equal to the maximum bandwidth of each of the ONUs, and equally dividing a bandwidth remaining after the bandwidth allocation for the maximum bandwidth to be additionally allocated as a bandwidth for LP to each of the ONUs.